What Is Claimed Is:

1. A micromechanical pressure sensor device for measuring at least one of low absolute pressures and small differential pressures, comprising:

a frame that is formed at least partially by a semiconductor material;

a membrane retained by the frame;

at least one measuring resistor arranged at a first location in or on the membrane, the at least one measuring resistor having a resistance value that is function of pressure-induced mechanical stresses in the membrane; and

at least one compensating resistor arranged at a second location in or on the membrane, the at least one compensating resistor having a resistance value that is a function of pressure-induced mechanical stresses in the membrane, the resistance value of the at least one measuring resistor changing at the first location with a first linear component and a first quadratic component as a function of the pressure, and the resistance value of the at least one compensating resistor changing at the second location approximatively without a linear component and with a second quadratic component, which is proportional to the first quadratic component, as a function of the pressure.

2. The pressure sensor device as recited in claim 1, wherein the at least one measuring resistor includes at least four measuring resistors, each of which being arranged at a respective first location of the membrane, and wherein the at least four measuring resistors are interconnected to form a first ring circuit configuration.

3. The pressure sensor as recited in claim 2, wherein the at least four measuring resistors are interconnected to form a Wheatstone measuring bridge.

4. The pressure sensor as recited in claim 2, wherein the at least four measuring resistors are interconnected to form a measuring transducer.

5. The pressure sensor device as recited in claim 1, wherein the at least one compensating resistor includes at least two compensating resistors, each of which being arranged at a respective second location of the membrane, and wherein the pressure sensor device further comprises:

at least two further compensating resistors, the compensating resistors and the at least two further resistors being interconnected to form a second ring circuit configuration.

6. The pressure sensor device as recited in claim 5, wherein the second ring circuit configuration is a Wheatstone bridge.

7. The pressure sensor device as recited in claim 5, wherein the second ring configuration is a compensating bridge.

8. The pressure sensor device as recited in claim 5, wherein the at least two further compensating resistors are disposed on the frame.

9. The pressure sensor device as recited in claim 5, wherein the at least two further compensating resistors are disposed on the membrane.

10. The pressure sensor device as recited in claim 5, wherein the at least two further compensating resistors are arranged in such a way that an electrical resistance of the two further compensating resistors remains substantially constant, even in an event of a deformation.

11. The pressure sensor device as recited in claim 1, wherein

at least one of the: i) measuring resistors, and ii) the compensating resistor is a piezoresistive resistor.

12. The pressure sensor device as recited in claim 8, wherein at least one of the further compensating resistors is positioned in such a way that it is substantially piezo-insensitive with respect to a deformation of the frame.

13. A measurement system for measuring at least one of absolute pressure and differential pressure, comprising:

a frame that is formed at least partially by a semiconductor material;

a membrane retained by the frame;

at least one measuring resistor arranged at a first location in or on the membrane, the at least one measuring resistor having a resistance value that is function of pressure-induced mechanical stresses in the membrane;

at least one compensating resistor arranged at a second location in or on the membrane, the at least one compensating resistor having a resistance value that is a function of pressure-induced mechanical stresses in the membrane, the resistance value of the at least one measuring resistor changing at the first location with a first linear component and a first quadratic component as a function of the pressure, and the resistance value of the at least one compensating resistor changing at the second location approximatively without a linear component and with a second quadratic component, which is proportional to the first quadratic component, as a function of the pressure;

first means for detecting a change in the resistance value produced by the pressure difference at the at least one measuring resistor; and

second means for detecting a change in the resistance value produced by the pressure difference at the at least one compensating resistor.

14. The measurement system as recited in claim 13, wherein the at least one measuring resistor includes four measuring resistors forming a Wheatstone measuring bridge, the first means detecting a change in voltage produced by a pressure difference between arms of the Wheatstone measuring bridge, and wherein the at least one compensating resistor includes two compensating resistors and two bridge resistors forming a Wheatstone compensating bridge, the second means detecting a change in voltage produced by a pressure difference between arms of the Wheatstone compensating bridge.

15. The measurement system as recited in claim 13, wherein the first means has a first voltage-current transducer via whose input a voltage change produced by the pressure difference is detected, a first electrical current, which is proportional to an input voltage at the first voltage-current transducer, being delivered via an output of the first voltage-current transducer, and wherein the second means has a second voltage-current transducer, via whose input a voltage change produced by the pressure difference is detected, a second electrical current, which is proportional to an input voltage at the second voltage-current transducer, being delivered via an output of the second voltage-current transducer, the second electrical current having an inverted sign with respect to the first electrical current, and wherein the measurement system further comprises:

a compensation circuit configured to the second electrical current and an amplified second electrical current from the first electrical current.

16. The measurement system as recited in claim 15, further comprising:

an amplifier configured to amplify the second electrical current delivered by the second voltage-current transducer.